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MATERIAL SAFETY DATA SHEET

Company	Issue Date	Identification Number
RELIANCE STEEL & ALUMINUM CO. 2550 EAST 25TH STREET LOS ANGELES, CALIFORNIA 90058	NOVEMBER 25, 1985 REVISED MARCH 1, 1988	1XXX THRU 7XXX SERIES LEADED 2011 & 6262
Trade Name (Common Name or Synonym) ALUMINUM ALLOYS ALUMINUM ALLOYS CONTAINING LEAD	Emergency Phone Number 213-582-2272 OR YOUR LOCAL RELIANCE DISTRIBUTOR	
Chemical Name	Formula	DOT Identification Number NA

I. INGREDIENTS

NOTE PRODUCTS UNDER NORMAL CONDITIONS DO NOT REPRESENT AN INHALATION, INGESTION OR CONTACT HEALTH HAZARD.

BASE METAL, ALLOYING ELEMENTS AND METALLIC COATINGS	CAS #	% COMPOSITION BY WEIGHT (1)	OSHA PEL	ACGIH TLV (mg/m³) (2)
Base Metal	CAS #		OSHA PEL	
Aluminum (Al)	7429-90-5	80-99.7	N.E.	10 (Metal & Oxide)
Alloying Elements				
Copper (Cu)	7440-50-8	<10	1	1 (Dust & Mist)
Magnesium (Mg)	1309-48-4	<10	15	10
Zinc (Zn)	7440-66-6	<10	N.E.	5 (As Fume)
Cobalt (Co)	7440-48-4	<2	.1	.1 (Dust & Fume)
Iron (Fe)	7439-89-6	<2	10	5 (As Iron Oxide)
Manganese (Mn)	7439-96-5	<2	5	5 (As Dust-Ceiling)
Silicon (Si)	7440-21-3	<2	15	10 (Total Dust)
Tin (Sn)	7440-31-5	<2	2	2
Chromium (Cr)	7440-47-3	<.5	.5	.5
Nickel (Ni)	7440-02-0	<.5	1	1
Leaded Alloys 2011 & 6262				
Lead (Pb)	7439-92-1	<1	.05	.15 (Dust & Fume)

(1) % OF ALLOYING MATERIAL VARIES WITH GRADE OF MATERIAL (2) 1985 - 1986 ACGIH THRESHOLD LIMIT VALUE

II. PHYSICAL DATA

Material is (At Normal Conditions)	Appearance and Odor		
☐ Liquid ■ Solid ☐ Gas ☐ Other	SILVER METALLIC, ODORLESS		
Acidity/Alkalinity pH - NA	Melting Point 440 - 1220 F Boiling Point NA F	Specific Gravity (H_2O = 1) 2.5 - 2.9 Solubility in water (% by weight) NA	Vapor Pressure (mm Hg at 20 C) NA

III. PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection	Hands, Arms and Body
NIOSH/MSHA APPROVED DUST & FUME RESPIRATOR SHOULD BE USED TO AVOID EXCESSIVE INHALATION OF PARTICULATES WHEN EXPOSURE EXCEEDS TLV'S	PROTECTIVE GLOVES ARE RECOMMENDED DURING HANDLING OF FINES EXPOSURE
Eyes and Face	Other Clothing and Equipment
SAFETY GLASSES OR GOGGLES SHOULD BE UTILIZED AS REQUIRED BY EXPOSURE	OTHER PROTECTIVE EQUIPMENT SHOULD BE UTILIZED AS REQUIRED BY THE WELDING STANDARD

IV. EMERGENCY MEDICAL PROCEDURES

IF EXPOSED TO EXCESSIVE LEVELS OF METAL FUMES, REMOVE TO FRESH AIR.

SEEK MEDICAL AID IMMEDIATELY.

EYES: FLUSH WITH WATER FOR AT LEAST 15 MINUTES.

V. HEALTH/SAFETY INFORMATION

STEEL PRODUCTS IN THE NATURAL STATE DO NOT PRESENT AN INHALATION, INGESTION OR CONTACT HAZARD HOWEVER, OPERATIONS SUCH AS BURNING, WELDING, SAWING, BRAZING AND GRINDING MAY RELEASE FUMES AND/OR DUSTS WHICH MAY PRESENT HEALTH HAZARDS IF TLV'S ARE EXCEEDED

MAJOR EXPOSURE HAZARD

☒ INHALATION ☐ SKIN CONTACT ☐ SKIN ABSORPTION ☐ INGESTION

Aluminum dust should be treated as a nuisance dust and high exposure may produce irritation of eyes and respiratory system. The potential for overexposure to copper fume may exist when welding, flame cutting, etc. on alloys containing high amounts of copper >2.5%. These alloys include 2XXX, 7XXX and 4145 wrought alloys. Overexposure to copper fume can result in respiratory irritation, nausea and metal fume fever.

Nickel and chromium are contained in certain alloys at levels of 0.1% or more. Chromium and nickel and their cumpounds are listed in the 3rd Annual Report on Carcinogens, as prepared by the National Toxicology Program (NTP). Their presence in Aluminum alloys, however, should not present a carcinogenic or health concern due to either their low concentrations or the chemical form in which they are present.

Inhalation or ingestion of lead particles may result in lead-induced systemic toxicity. Symptoms of lead poisoning include abdominal cramps, anemia, muscle weakness and headache. Prolonged exposure can cause behavioral changes, kidney damage, CNS damage and reproductive effects.

Plasma arc cutting or welding aluminum can generate ozone. Overexposures to ozone can result in mucous membrane irritation, as well as pulmonary changes including irritation, congestion and edema.

SUSPECTED CANCER AGENT? NO. THIS PRODUCTS INGREDIENTS ARE NOT FOUND IN THE LISTS BELOW
✓YES FEDERAL OSHA ✓NTP IARC

Fire and Explosion	Flash Point NA F	Auto Ignition Temperature NA F	Flammable Limits in Air Lower NA % Upper %	Extinguishing Media	DRY POWDER (CLASS D) OR SAND

	Fire and Explosion Hazards DAMP ALUMINUM DUST MAY SPONTANEOUSLY HEAT WITH LIBERATION OF HYDROGEN TO FORM EXPLOSIVE MIXTURES MOLTEN MAY EXPLODE ON CONTACT WITH WATER	Extinguishing Media not to be used DO NOT USE WATER OR HALOGEN ON DUST FIRES

Reactivity	Stability ■Stable ☐Unstable	Incompatibility (Materials to Avoid) ANHYDROUS BROMINE. ALSO SEE NFPA # 491M
	Conditions to Avoid	SEE FIRE AND EXPLOSION SECTION. SEE ADDITIONAL INFORMATION
	Hazardous Decomposition Products	SEE FIRE AND EXPLOSION SECTION. SEE ADDITIONAL INFORMATION

VI. ENVIRONMENTAL

Spill or Leak Procedures

NA

Waste Disposal Method

ACCORDING TO LOCAL, STATE AND FEDERAL REGULATIONS

VII. ADDITIONAL INFORMATION

VENTILATION: LOCAL EXHAUST VENTILATION SHOULD BE UTILIZED WHEN WELDING, BURNING, SAWING, BRAZING, GRINDING OR MACHINING WHEN EXPOSURE EXCEEDS TLV'S

1. HALOGEN ACIDS AND SODIUM HYDROXIDE IN CONTACT WITH ALUMINUM MAY GENERATE MIXTURES OF HYDROGEN.
2. FINELY DIVIDED ALUMINUM WILL FORM EXPLOSIVE MIXTURES IN AIR. IT WILL ALSO FORM EXPLOSIVE MIXTURES IN AIR IN THE PRESENCE OF BROMATES, IODATES OR AMMONIUM NITRATE.
3. WHEN REMELTING ALUMINUM SCRAP, ENTRAPPED MOISTURE OR THE PRESENCE OF STRONG OXIDIZERS SUCH AS AMMONIUM NITRATE COULD CAUSE AN EXPLOSION. THIS APPLIES TO THE COLLECTION OF MOISTURE IN SOW CAVITIES AS WELL. MOISTURE MUST BE DRIVEN OFF PRIOR TO REMELTING.
4. DO NOT TOUCH CAST ALUMINUM METAL OR HEATED ALUMINUM PRODUCT WITHOUT KNOWING METAL TEMPERATURE. ALUMINUM EXPERIENCES NO COLOR CHANGE DURING HEATING. IF METAL IS HOT AND TOUCHED, BURNS CAN RESULT.
5. HARD ALLOY INGOTS IN THE 2000 AND 7000 SERIES MUST BE STRESS-RELIEVED TO PREVENT EXPLOSION WHEN SAWED.
6. THE WELDING OF ALUMINUM ALLOYS MAY GENERATE CARBON MONOXIDE, CARBON DIOXIDE, OZONE, NITROGEN OXIDES, INFRA-RED RADIATION AND ULTRA-VIOLET RADIATION.
7. ALUMINUM POWDER MUST BE PACKAGED AND SHIPPED AS A FLAMMABLE SOLID. UN1396.